

**Translation**

**PATENT COOPERATION TREATY**

PCT/JP2004/011103



**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference NC-289	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. PCT/JP2004/011103	International filing date (day/month/year) 28 July 2004 (28.07.2004)	Priority date (day/month/year) 28 July 2003 (28.07.2003)
International Patent Classification (IPC) or national classification and IPC G03F 7/023, 7/004, 7/022		
Applicant NISSAN CHEMICAL INDUSTRIES, LTD.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
  - a. ☐ (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:
    - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
    - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
  - b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- ☒ Box No. I Basis of the report
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 17 December 2004 (17.12.2004)	Date of completion of this report 13 June 2005 (13.06.2005)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/011103

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is language of a translation furnished for the purpose of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☒ The international application as originally filed/furnished

☐ the description:  
 pages \_\_\_\_\_, as originally filed/furnished  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the claims:  
 pages \_\_\_\_\_, as originally filed/furnished  
 pages\* \_\_\_\_\_, as amended (together with any statement) under Article 19  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the drawings:  
 pages \_\_\_\_\_, as originally filed/furnished  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/JP2004/011103

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement	Novelty (N)	Claims	2	YES
		Claims	1, 3-9	NO
Inventive step (IS)		Claims		YES
		Claims	1-9	NO
Industrial applicability (IA)		Claims	1-9	YES
		Claims		NO

## 2. Citations and explanations (Rule 70.7)

Document 1: JP, 2003-195501, A (Fuji Film Arch Co., Ltd.)  
July 9, 2003 (07.09.03), Claims, Paragraphs 0015, 0046, 0048, 0054, 0055 and 0087-0092

Document 2: JP, 2001-242616, A (Fuji Film Arch Co., Ltd.)  
September 7, 2001 (09.07.01), Claim 1, Paragraphs 0013, 0040-0045 and 0056

Document 3: JP, 2001-354822, A (JSR Corporation)  
December 25, 2001 (12.25.01), Claim 1, Paragraphs 0027-0028, 0039, 0043 and 0058-0061

Document 4: JP, 7-120925, A (Tosoh Corporation)  
May 12, 1995 (05.12.95), Claim 1, Paragraphs 0017-0018, 0023-0023 and 0040

The inventions relating to claims 1 and 3-9 do not appear to be novel or involve an inventive step based on document 1. Also, the inventions relating to the above claims do not appear to involve an inventive step based on documents 1 and 2.

Because the copolymer specifically described in document 1 containing an unsaturated carboxylic acid derivative and N-substituted maleimide as essential ingredients has a mass-average molecular weight of about 15,000, it is highly possible that a number-average molecular weight is within the range of 2,000-20,000. Document 1 suggests a compound equivalent to a 1, 2-quinonediazide compound represented by the general formulae (1), (3) and (4), and describes such compound being contained in an amount of 5-100 parts by weight with respect to a resin. Also, document 1 describes containing a crosslinking agent, which is equivalent to a crosslinking compound represented by the general formula (2), in an amount of 5-50 parts by weight with respect to a resin.

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.  
Continuation of Box V:

Also, the inventions relating to claims 1 and 3-9 do not appear to involve an inventive step based on documents 1 and 2. Document 2 specifically describes a compound equivalent to a 1, 2-quinonediazine compound represented by the general formulas (1) and (4). In the invention described in document 1, adopting the 1, 2-quinonediazine taught in document 2 would be easy for a party skilled in the art.

The invention relating to claim 2 does not appear to involve an inventive step based on document 1. An alkali-soluble resin residual monomer is an impurity; therefore, a party skilled in the art could appropriately adjust to lower the amount of such monomer.

The inventions relating to claims 1-9 do not appear to involve an inventive step based on documents 3 and 4.

Document 3 describes a positive type photosensitive resin composition comprising an alkali-soluble resin, which is a copolymer having an unsaturated carboxylic acid derivative and N-substituted maleimide as essential ingredients, having a number-average molecular weight of 2,000-20,000; a 1, 2-quinonediazide compound represented by the general formulae (1), (3) and (4); and a cyclic aliphatic epoxy resin.

Document 4 describes a crosslinking compound represented by the general formula (2).

In the invention described in document 3, adopting the crosslinking compound taught in document 4 would be easy for a party skilled in the art.

Also, the amount of an alkali-soluble resin residual monomer could be appropriately adjusted by a party skilled in the art.